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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

LEE, BENNY T

ART UNIT

PAPER NUMBER

2817

DATE MAILED: 06/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.



UNITED STATES DEPARTMENT OF COMMERCE  
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☐ This application has been examined ☒ Responsive to communication filed on 22 April 2009 ☐ This action is made final.

A shortened statutory period for response to this action is set to expire Three (3) month(s), 2 days from the date of this letter.  
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- |   |   |
|---|---|
| 1. <input type="checkbox"/> Notice of References Cited by Examiner, PTO-892.        | 2. <input type="checkbox"/> Notice re Patent Drawing, PTO-948.                  |
| 3. <input type="checkbox"/> Notice of Art Cited by Applicant, PTO-1449.             | 4. <input type="checkbox"/> Notice of Informal Patent Application, Form PTO-152 |
| 5. <input type="checkbox"/> Information on How to Effect Drawing Changes, PTO-1474. | 6. <input type="checkbox"/>   |

Part II SUMMARY OF ACTION

1. ☒ Claims 1-20 are pending in the application.

Of the above, claims \_\_\_\_\_ are withdrawn from consideration.

2. ☐ Claims \_\_\_\_\_ have been cancelled.

3. ☒ Claims 18-20 are allowed.

4. ☒ Claims 1-7, 10-14 are rejected.

5. ☒ Claims 8, 9, 15-17 are objected to.

6. ☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.

8. ☐ Formal drawings are required in response to this Office action.

9. ☐ The corrected or substitute drawings have been received on \_\_\_\_\_. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice re Patent Drawing, PTO-948).

10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on \_\_\_\_\_, has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).

11. ☐ The proposed drawing correction, filed \_\_\_\_\_, has been ☐ approved; ☐ disapproved (see explanation).

12. ☐ Acknowledgement is made of the claim for priority under U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. \_\_\_\_\_, filed on \_\_\_\_\_.

13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.

14. ☐ Other

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The finality of the last Office action has been withdrawn in view of the new grounds of rejection set forth below. Accordingly, the amendment after Final filed 22 April 2004 has been entered and the following new grounds of rejection has been applied:

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 10-13; 3 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by the EP ('507) reference (of record).

The EP ('507) reference discloses with respect to Fig. 8 therein a waveguide integrated circuit including a structure having a high dielectric constant (i.e. dielectric constant of 2.4) "core" portion extending in a longitudinal direction (i.e. into the sheet of paper). The "core" also includes cross-sectional (i.e. horizontal & vertical) dimensions (i.e. in the plane of the sheet of paper). Note that adjacent both edges of the "core" portion are low dielectric constant (i.e. dielectric constant of 1.0) air portions or channels extending the full length of the "core" portion and thus forming impedance discontinuities at the interface therebetween. Note that parallel planes of conductive material are disposed above and below the "core" portion of the waveguide circuit such that the conductive planes define a top and bottom of the "core" as well as define the air channels "between" the air channels.

Note that with respect to method claim 1, the specific manufacturing techniques recited in the preamble of the claim have not been given any substantial patentable weight since these technique limitations do not appear to be uniquely related to the positive method steps recited in the body of this claim.

Claims 2, 14; 4, 5, 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over the EP ('507) reference in view of the EP ('328) reference (both of record).

As disclosed in the EP ('507) reference, note that the air channels are oriented along the interface between the "core" and the air-channels. However, the EP ('507) reference does not disclose the "core" portion having vertically oriented via holes and does not disclose use of a hole and probe waveguide excitation arrangement.

As disclosed in the EP ('328) reference, at fig. 1 thereof, a dielectric waveguide includes a high dielectric constant propagating region (5) which is electrically isolated from adjacent non-propagating regions by rows of conductive vias (4) at respective interfaces between the propagating region (5) and the regions adjacent thereto aligned along the longitudinal/propagating direction in propagating region (5). Moreover, as disclosed with respect to figs. 5, 6, signal coupling is effected by a hole in the upper conductive layer (2) through which a probe/antenna (52/62) protrudes through to propagate signal energy in propagating region (5).

Accordingly, it would have been obvious in view of the references, taken as a whole to have: 1) added conductive vias along the interface of the "core" region in the EP ('507) reference; and 2) provided a hole and coupling probe as the waveguide coupling structure in the EP ('507) reference.

Such a modification would have been obvious since: 1) the addition of conductive vias along the propagating/non-propagating interface of the EP ('507) reference, which would have provided the advantageous benefit of additional isolation between the propagating "core" and the non-adjacent (i.e. air channel) portion in the EP ('507) reference, thereby suggesting the obviousness of such a modification; and 2) the generic nature of the waveguide coupling in the

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EP ('507) reference would have suggested that any equivalent waveguide coupling (i.e. a hole and probe coupling as taught by the EP ('328) publication) would have been usable therewith, thereby suggesting the obviousness of such a combination.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over the EP ('507) reference in view of King (both of record).

As described above, the EP ('507) reference meets the claimed invention except for the loop probe extending through a hole in the waveguide.

King (fig. 40) discloses that the use of loop probes passing through a hole in a waveguide would have been considered conventional in the art.


Accordingly, it would have been considered obvious in view of the references, taken as a whole, to have provided a loop probe waveguide coupling as taught by King as the waveguide coupling in the EP ('507) reference. Such a modification would have been considered obvious since the generic nature of the waveguide coupling in the EP ('507) reference would have suggested that any equivalent waveguide coupling (i.e. loop probe of King) would have been usable, thereby suggesting the obviousness of such a modification.

Claims 8, 9, 15, 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 18-20 are allowable over the prior art of record.

Any inquiry concerning this communication should be directed to Benny Lee at telephone number 571 272 1764.

B. Lee

  
BENNY T. LEE  
PRIMARY EXAMINER  
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